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PTO/SB/08A (08-00)

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)			<i>Complete if Known</i>		
			Application Number	10/781,801	
			Filing Date	February 20, 2004	
			First Named Inventor	Louis B. ROSENBERG	
			Group Art Unit	2817	
Examiner Name	Wachman				
Sheet	1	of	8	Attorney Docket Number	IMMR-038/06US

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
		Number	Kind Code ² (if known)		
W		5,785,630		Bobick, et al.	07/28/1998
W		5,766,016		Sinclair et al.	06/16/1998
W		5,547,382		Yamasaki et al.	08/20/1996
W		5,466,213		Hogan et al.	11/14/1995
W		5,334,027		Wherlock	08/02/1994
W		5,309,140		Everett, Jr., et al.	05/03/1994
W		5,299,810		Pierce et al.	04/05/1994
W		5,275,174		Cook	01/04/1994
W		5,271,290		Fischer	12/21/1993
W		5,240,417		Smithson et al.	08/31/1993
W		5,212,473		Louis	05/18/1993
W		5,078,152		Bond et al.	01/07/1992
W		5,038,089		Szakaly	08/06/1991
W		5,035,242		Franklin et al.	07/30/1991
W		5,022,407		Horch et al.	06/11/1991
W		5,019,761		Kraft	05/28/1991
W		4,934,694		McIntosh	06/19/1990
W		4,930,770		Baker	06/05/1990
W		4,891,764		McIntosh	01/02/1990
W		4,794,392		Selinko	12/27/1988
W		4,713,007		Alban	12/15/1987
W		4,708,656		de Vries et al.	11/24/1987
W		4,599,070		Hladky et al.	07/08/1986
W		4,581,491		Boothroyd	04/08/1986
W		4,513,235		Acklam et al.	04/23/1985
W		4,236,325		Hall et al.	12/02/1980
W		4,160,508		Salisbury, Jr.	07/10/1979
W		3,911,416		Feder	10/07/1975
W		3,903,614		Diamond et al.	09/09/1975
W		3,902,687		Hightower	09/02/1975
W		3,623,064		Kagan	11/23/1971
W		3,517,446		Corlyon et al.	06/30/1970
W		3,497,668		Hirsch	02/24/1970
W		3,220,121		Cutler	11/30/1965
W		3,157,853		Hirsch	11/17/1964

Examiner Signature	<i>Wachman</i>	Date Considered	8-21-04
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¹ Unique citation designation number.

² See attached Kinds of U.S. Patent Documents.

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			Application Number	10/781,801	
			Filing Date	February 20, 2004	
			First Named Inventor	Louis B. ROSENBERG	
			Group Art Unit	2857 -	
Examiner Name	Wachman				
Sheet	2	of	8	Attorney Docket Number	IMMR-038/06US

					Class	Subclass	
29/		2,906,179		Bower	-	-	09/29/1959
29/		3,490,059		Paulsen et al.	-	-	01/13/1970
29/		3,531,868		Stevenson	-	-	10/06/1970
29/		3,875,488		Crocker et al.	-	-	04/01/1975
29/		3,890,958		Fister et al.	-	-	06/24/1975
29/		3,944,798		Eaton	-	-	03/16/1976
29/		4,148,014		Burson	-	-	04/03/1979
29/		4,216,467		Colston	-	-	08/05/1980
29/		4,448,083		Hayashi	-	-	05/15/1984
29/		4,550,221		Mabuth	-	-	10/29/1985
29/		4,571,834		Fraser et al.	-	-	02/25/1986
29/		4,601,206		Watson	-	-	07/22/1986
29/		4,638,798		Shelden et al.	-	-	01/27/1987
29/		4,653,011		Iwano	-	-	03/24/1987
29/		4,654,648		Herrington et al.	-	-	03/31/1987
29/		4,676,002		Slocum	-	-	06/30/1987
29/		4,679,331		Koontz	-	-	07/14/1987
29/		4,688,983		Lindbom	-	-	08/25/1987
29/		4,704,909		Grahn et al.	-	-	11/10/1987
29/		4,750,487		Zanetti	-	-	06/14/1988
29/		4,769,763		Trieb et al.	-	-	09/06/1988
29/		4,787,051		Olson	-	-	05/16/1986
29/		4,791,934		Brunnett	-	-	08/07/1986
29/		4,798,919		Miesster et al.	-	-	03/11/1988
29/		4,800,721		Cemenska et al.	-	-	02/13/1987
29/		4,803,413		Kendig et al.	-	-	07/15/1986
29/		4,807,152		Lane et al.	-	-	03/02/1987
29/		4,811,608		Hilton	-	-	11/06/1986
29/		4,815,006		Andersson et al.	-	-	09/16/1987
29/		4,819,195		Bell et al.	-	-	01/20/1987
29/		4,840,634		Muller et al.	-	-	06/10/1987
29/		4,879,556		Duimel	-	-	10/26/1987
29/		4,888,877		Enderle et al.	-	-	12/26/1989
29/		4,891,889		Tomelleri	-	-	01/09/1990
29/		4,907,970		Meenen, Jr.	-	-	03/13/1990
29/		4,945,501		Bell et al.	-	-	07/31/1990
29/		4,961,138		Gorniak	-	-	10/02/1990
29/		4,961,267		Herzog	-	-	10/09/1990
29/		4,962,591		Zeller et al.	-	-	10/16/1990
29/		4,982,504		Söderberg et al.	-	-	01/08/1991
29/		5,007,085		Greanias et al.	-	-	04/09/1991
29/		5,007,300		Siva	-	-	04/16/1991

Examiner Signature	<i>Paul Wachman</i>	Date Considered	8-21-04
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			Application Number	10/781,801	
			Filing Date	February 20, 2004	
			First Named Inventor	Louis B. ROSENBERG	
			Group Art Unit	2,857	
			Examiner Name	Wuchman	
Sheet	3	of	8	Attorney Docket Number	IMMR-038/06US

				<i>Class Subclass</i>			
<i>W</i>		5,040,306		McMurtry et al.	—	—	08/20/1991
<i>W</i>		5,050,608		Watanabe et al.	—	—	09/04/1990
<i>W</i>		5,072,361		Davis et al.	—	—	02/01/1990
<i>W</i>		5,088,046		McMurtry	—	—	07/28/1989
<i>W</i>		5,088,055		Oyama	—	—	02/22/1990
<i>W</i>		5,095,303		Clark et al.	—	—	03/27/1990
<i>W</i>		5,103,404		McIntosh	—	—	12/20/1989
<i>W</i>		5,116,051		Moncreif et al.	—	—	06/08/1990
<i>W</i>		5,125,261		Powley	—	—	05/28/1991
<i>W</i>		5,126,948		Mitchell et al.	—	—	11/08/1989
<i>W</i>		5,128,671		Thomas, Jr.	—	—	04/12/1990
<i>W</i>		5,131,844		Marinaccio et al.	—	—	04/08/1991
<i>W</i>		5,132,672		Clark	—	—	07/21/1992
<i>W</i>		5,134,782		Breyer et al.	—	—	08/04/1992
<i>W</i>		5,139,261		Openiano	—	—	08/18/1992
<i>W</i>		5,142,506		Edwards	—	—	08/25/1992
<i>W</i>		5,142,931		Menahem	—	—	09/01/1992
<i>W</i>		5,143,505		Burdea et al.	—	—	09/01/1992
<i>W</i>		5,148,377		McDonald	—	—	09/15/1992
<i>W</i>		5,150,023		Toyama et al.	—	—	09/22/1992
<i>W</i>		5,168,453		Nomaru et al.	—	—	12/01/1992
<i>W</i>		5,181,181		Glynn	—	—	01/19/1993
<i>W</i>		5,184,306		Erdman et al.	—	—	02/02/1993
<i>W</i>		5,184,319		Kramer	—	—	02/02/1990
<i>W</i>		5,185,561		Good et al.	—	—	07/23/1991
<i>W</i>		5,187,874		Takahashi et al.	—	—	02/08/1991
<i>W</i>		5,189,806		McMurtry et al.	—	—	08/17/1992
<i>W</i>		5,204,824		Fujimaki	—	—	08/23/1990
<i>W</i>		5,208,763		Hong et al.	—	—	09/14/1990
<i>W</i>		5,209,131		Baxter	—	—	10/12/1990
<i>W</i>		5,220,260		Schuler	—	—	10/24/1991
<i>W</i>		5,228,356		Chuang	—	—	11/25/1991
<i>W</i>		5,230,623		Guthrie et al.	—	—	12/10/1991
<i>W</i>		5,243,266		Kasagami et al.	—	—	07/02/1992
<i>W</i>		5,246,316		Smith	—	—	03/06/1992
<i>W</i>		5,251,127		Raab	—	—	07/31/1990
<i>W</i>		5,251,156		Heier et al.	—	—	07/11/1991
<i>W</i>		5,259,120		Chapman et al.	—	—	07/20/1992
<i>W</i>		5,259,894		Sampson	—	—	01/26/1990
<i>W</i>		5,264,768		Gregory et al.	—	—	10/06/1992
<i>W</i>		5,296,846		Ledley	—	—	10/05/1992

Examiner Signature	<i>Pat Wuchman</i>	Date Considered	8-21-04
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PTO/SB/08A (08-00)

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				<i>Complete if Known</i>	
				Application Number	10/281,801
				Filing Date	February 20, 2004
				First Named Inventor	Louis B. ROSENBERG
				Group Art Unit	2857
				Examiner Name	Wachman
Sheet	4	of	8	Attorney Docket Number	IMMR-038/06US

				<i>Class Subclass</i>		
<i>W</i>		5,347,476		McBean, Sr.	—	—
<i>W</i>		5,351,692		Dow et al.	—	06/09/1993
<i>W</i>		5,354,162		Burdea et al.	—	08/31/1992
<i>W</i>		5,379,663		Hara	—	11/22/1993
<i>W</i>		5,384,460		Tseng	—	11/03/1993
<i>W</i>		5,389,865		Jacobus et al.	—	12/02/1992
<i>W</i>		5,396,267		Bouton	—	01/07/1993
<i>W</i>		5,397,323		Taylor et al.	—	10/30/1992
<i>W</i>		5,402,582		Raab	—	02/23/1993
<i>W</i>		5,412,880		Raab	—	—
<i>W</i>		5,414,337		Schuler	—	06/11/1993
<i>W</i>		5,417,696		Kashuba et al.	—	03/23/1993
<i>W</i>		5,428,748		Davidson et al.	—	09/24/1992
<i>W</i>		5,429,140		Burdea et al.	—	06/04/1993
<i>W</i>		5,429,682		Harlow, Jr. et al.	—	08/19/1993
<i>W</i>		5,436,542		Petelin et al.	—	01/28/1994
<i>W</i>		5,445,166		Taylor	—	04/06/1994
<i>W</i>		5,465,323		Mallet	—	09/19/1990
<i>W</i>		5,467,289		Abe et al.	—	10/12/1993
<i>W</i>		5,467,763		McMahon et al.	—	07/20/1994
<i>W</i>		5,510,977		Raab	—	08/02/1994
<i>W</i>		5,512,919		Araki	—	03/30/1993
<i>W</i>		5,513,100		Parker et al.	—	06/10/1993
<i>W</i>		5,526,576		Fuchs et al.	—	09/12/1994
<i>W</i>		5,576,727		Rosenberg et al.	—	06/05/1995
<i>W</i>		5,591,924		Hilton	—	04/23/1993
<i>W</i>		5,601,084		Sheehan	—	05/26/1995
<i>W</i>		5,611,147		Raab	—	03/03/1995
<i>W</i>		5,623,582		Rosenberg	—	07/14/1994
<i>W</i>		5,625,576		Massie et al.	—	10/01/1993
<i>W</i>		4,593,470		Davies	—	08/13/1984
<i>W</i>		4,775,289		Kazerooni	—	09/25/1987
<i>W</i>		4,857,816		Rogozinski et al.	—	10/08/1987
<i>W</i>		4,949,119		Moncrief et al.	—	01/12/1989
<i>W</i>		5,193,963		McAfee et al.	—	10/31/1990
<i>W</i>		5,629,594		Jacobus et al.	—	10/16/1995
<i>W</i>		5,701,140		Rosenberg et al.	—	07/12/1994
<i>W</i>		5,794,356		Raab	—	11/18/1996
<i>W</i>		5,880,714		Rosenberg et al.	—	01/15/1997
<i>W</i>		6,078,876		Rosenberg et al.	—	10/29/1996
<i>W</i>		6,125,337		Rosenberg et al.	—	12/15/1998
<i>W</i>		4,703,443		Moriyasu	—	10/1987
<i>W</i>		5,461,797		Royer et al.	—	10/1995
<i>W</i>		6,366,831	BI	Raab	—	04/02/2002
<i>W</i>		6,535,794	BI	Raab	—	03/18/2003

Examiner Signature	<i>Hal Wachman</i>	Date Considered	8-21-04
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Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)			Complete if Known		
			Application Number	101781801	
			Filing Date	February 20, 2004	
			First Named Inventor	Louis B. ROSENBERG	
			Group Art Unit	2857	
			Examiner Name	Wachner	
Sheet	5	of	8	Attorney Docket Number	IMMR-038/06US

FOREIGN PATENT DOCUMENTS									
Examiner Initials*	Cite No. ¹	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	C/Int/Sub/Gr.		Date of Publication of Cited Document MM-DD-YYYY	T ⁴
		Office ¹	Number ²	Kind Code ³ (if known)					
W		EPO	0 349 086	AI	Stork Kwant B.V.	—	—	01/03/1990	
W		WO	WO9520787		PLT	—	—	08/03/1995	
W		WO	WO9520788		PLT	—	—	08/03/1995	
W		WO	WO9502801		PLT	—	—	01/26/1995	
W		WO	WO9532459		PLT	—	—	11/30/1995	
W		EPO	470257		EPO	—	—	02/12/1992	
W		EPO	541500		EPO	—	—	05/12/1993	
W		EPO	655301		EPO	—	—	11/15/1993	
W		EPO	640902		EPO	—	—	03/01/1995	
W		EPO	634150		EPO	—	—	01/18/1995	

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS				
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.		T ²
W		Baigrie, "Electric Control Loading – A Low Cost, High Performance Alternative," <i>Proceedings of Interservice/Industry Training Systems Conference</i> , pp. 247-254, November 6-8, 1990		
W		Iwata, "Pen-based Haptic Virtual Environment," 0-7803-1363-1/93 IEEE, pp. 287-292, 1993. <i>Unpublished</i>		
W		Russo, "The Design and Implementation of a Three Degree of Freedom Force Output Joystick," <i>MIT Libraries Archives</i> pp. 1-131, May 1990, archived 8/14/90		
W		Brooks et al., "Hand Controllers for Teleoperation - A State-of-the-Art Technology Survey and Evaluation," <i>JPL Publication 85-11</i> , NASA-CR-175890; N85-28559, pp. 1-84, 03/1/1985		
W		Jones et al., "A perceptual analysis of stiffness," ISSN 0014-4819, Springer International (Springer-Verlag); <i>Experimental Brain Research</i> , Vol. 79, No. 1, pp. 150-156, 1990. <i>Unpublished</i>		
W		Burdea et al., "Distributed Virtual Force Feedback, Lecture Notes for Workshop on Force Display in Virtual Environments and its Application to Robotic Teleoperation," 1993 <i>IEEE International Conference on Robotics and Automation</i> , pp. 25-44, 05/02/1993		
W		Snow et al., 'Model-X Force-Reflecting-Hand-Controller,' NT Control No. NPO-17851; JPL Case No. 7348, pp. 1-4 with 45 pages of attachments, 06/15/1989		
W		Ouh-Young, "Force Display in Molecular Docking," Doctoral Dissertation, University of North Carolina at Chapel Hill, UMI Order No. 9034744, p. 1-369, 1990. <i>Unpublished</i>		

Examiner Signature	<i>Wachner</i>	Date Considered	8-21-04
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¹ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

² For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

³ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

⁴ Applicant is to place a check mark here if English language Translation is attached.

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		Filing Date	February 20, 2004		
		First Named Inventor	Louis B. ROSENBERG		
		Group Art Unit	2857		
Examiner Name	Wahman				
Sheet	6	of	8	Attorney Docket Number	IMMR-038/06US

<i>W</i>	Tadros, "Control System Design for a Three Degree of Freedom Virtual Environment Simulator Using Motor/Brake Pair Actuators," <i>MIT Archive</i> , pp. 1-88, February 1990, archived 8/13/90	
<i>W</i>	Caldwell et al., "Enhanced Tactile Feedback (Tele-Taction) Using a Multi-Functional Sensory System," 1050-4729/93, pp. 955-960, 1993 <i>(No mention)</i>	
<i>W</i>	Adelstein et al., "Design and Implementation of a Force Reflecting Manipulandum for Manual Control research," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 1-12, 1992. <i>(No mention)</i>	
<i>W</i>	Gotow et al., "Controlled Impedance Test Apparatus for Studying Human Interpretation of Kinesthetic Feedback," WAI1-11:00, pp. 332-337. <i>(No date)</i>	
<i>W</i>	Stanley et al., "Computer Simulation of Interacting Dynamic Mechanical Systems Using Distributed Memory Parallel Processors," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 55-61, ASME 1992. <i>(No mention)</i>	
<i>W</i>	Russo, "Controlling Dissipative Magnetic Particle Brakes in Force Reflective Devices," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 63-70, ASME 1992. <i>(No mention)</i>	
<i>W</i>	Kontarinis et al., "Display of High-Frequency Tactile Information to Teleoperators," <i>Telemanipulator Technology and Space Telerobotics</i> , Won S. Kim, Editor, Proc. SPIE Vol. 2057, pp. 40-50, Sep. 7-9, 1993	
<i>W</i>	Patrick et al., "Design and Testing of A Non-reactive, Fingertip, Tactile Display for Interaction with Remote Environments," <i>Cooperative Intelligent Robotics in Space</i> , Rui J. deFigueiredo et al, Editor, Proc. SPIE Vol. 1387, pp. 215-222, 1990. <i>(No mention)</i>	
<i>W</i>	Adelstein, "A Virtual Environment System For The Study of Human Arm Tremor," <i>Ph.D. Dissertation</i> , Dept. of Mechanical Engineering, MIT, June 1989, archived 3/13/90	
<i>W</i>	Bejczy, "Sensors, Controls, and Man-Machine Interface for Advanced Teleoperation," <i>Science</i> , Vol. 208, No. 4450, pp. 1327-1335, 1980. <i>(No mention)</i>	
<i>W</i>	Bejczy et al., "Generalization of Bilateral Force-Reflecting Control of Manipulators," <i>Proceedings Of Fourth CISM-IFTOMM</i> , Sep. 8-12, 1981	
<i>W</i>	McAfee et al., "Teleoperator Subsystem/Telerobot Demonstrator: Force Reflecting Hand Controller Equipment Manual," JPL 1988, JPL D-5172. <i>(No mention)</i>	
<i>W</i>	Minsky, "Computational Haptics: The Sandpaper System for Synthesizing Texture for a Force-Feedback Display," <i>Ph.D. Dissertation</i> , MIT, June 1995, archived 7/6/95	
<i>W</i>	Jacobsen et al., "High Performance, Dexterous Telerobotic Manipulator With Force Reflection," <i>Intervention/ROV '91 Conference & Exposition</i> , Hollywood, Florida, May 21-23, 1991	
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Examiner Signature	<i>Wahman</i>	Date Considered	8-21-04
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		Application Number	10781801		
		Filing Date	February 20, 2004		
		First Named Inventor	Louis B. ROSENBERG		
		Group Art Unit	2857		
		Examiner Name	Wahman		
Sheet	7	of	8	Attorney Docket Number	IMMR-038/06US

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		Filing Date	February 20, 2004		
		First Named Inventor	Louis B. ROSENBERG		
		Group Art Unit	2852		
		Examiner Name	Wachner		
Sheet	8	of	8	Attorney Docket Number	IMMR-038/06US

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